

80

SEQUENCE LISTING

<110> Acton, Susan

<120> NOVEL CSAPK-1 NUCLEIC ACID MOLECULES AND USES THEREFOR

<130> MNI-050

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<170> PatentIn Ver. 2.0

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<222> (297)..(1202)

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84

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 Tyr Tyr Ala Ser Phe Ile Glu Asp Asn Glu Leu Asn Ile Val Leu Glu
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 Leu Ala Asp Ala Gly Asp Leu Ser Arg Met Ile Lys His Phe Lys Lys
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 245 250 255
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87

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Leu	Thr	Ile	Pro	Ser	Ser	Cys	Pro	Arg	Ser	Phe	Ala	Glu	Leu	Leu	His

90

225 230 235 240
 Gln Cys Trp Glu Ala Asp Ala Lys Lys Arg Pro Ser Phe Lys Gln Ile
 245 250 255
 Ile Ser Ile Leu Glu Ser Met Ser Asn Asp Thr Ser Leu Pro Asp Lys
 260 265 270
 Cys Asn Ser Phe Leu His Asn Lys Ala Glu Trp Arg Cys Glu Ile Glu
 275 280 285
 Ala Thr Leu Glu Arg Leu Lys Lys Leu Glu Arg Asp Leu Ser Phe Lys
 290 295 300
 Glu Gln Glu Leu Lys Glu Arg Glu Arg Arg Leu Lys Met Trp Glu Gln
 305 310 315 320
 Lys Leu Thr Glu Gln Ser Asn Thr Pro Leu Leu Leu Pro Leu Ala Ala
 325 330 335
 Arg Met Ser Glu Glu Ser Tyr Phe Glu Ser Lys Thr Glu Glu Ser Asn
 340 345 350
 Ser Ala Glu Met Ser Cys Gln Ile Thr Ala Thr Ser Asn Gly Glu Gly
 355 360 365
 His Gly Met Asn Pro Ser Leu Gln Ala Met Met Leu Met Gly Phe Gly
 370 375 380
 Asp Ile Phe Ser Met Asn Lys Ala Gly Ala Val Met His Ser Gly Met
 385 390 395 400
 Gln Ile Asn Met Gln Ala Lys Gln Asn Ser Ser Lys Thr Thr Ser Lys
 405 410 415
 Arg Arg Gly Lys Lys Val Asn Met Ala Leu Gly Phe Ser Asp Phe Asp
 420 425 430
 Leu Ser Glu Gly Asp Asp Asp Asp Asp Asp Asp Gly Glu Glu Glu Asp
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<213> Homo sapiens

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91

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cag ttt ttt gaa aac tgc ggt gga gga agt ttt ggg agt gtt tat cga				96
Gln Phe Phe Glu Asn Cys Gly Gly Gly Ser Phe Gly Ser Val Tyr Arg	20	25	30	
gcc aaa tgg ata tca cag gac aag gag gtg gct gta aag aag ctc ctc				144
Ala Lys Trp Ile Ser Gln Asp Lys Glu Val Ala Val Lys Lys Leu Leu	35	40	45	
aaa ata gag aaa gag gca gaa ata ctc agt gtc ctc agt cac aga aac				192
Lys Ile Glu Lys Glu Ala Glu Ile Leu Ser Val Leu Ser His Arg Asn	50	55	60	
atc atc cag ttt tat gga gta att ctt gaa cct ccc aac tat ggc att				240
Ile Ile Gln Phe Tyr Gly Val Ile Leu Glu Pro Pro Asn Tyr Gly Ile	65	70	75	80
gtc aca gaa tat gct tct ctg gga tca ctc tat gat tac att aac agt				288
Val Thr Glu Tyr Ala Ser Leu Gly Ser Leu Tyr Asp Tyr Ile Asn Ser	85	90	95	
aac aga agt gag gag atg gat atg gat cac att atg acc tgg gcc act				336
Asn Arg Ser Glu Glu Met Asp Met Asp His Ile Met Thr Trp Ala Thr	100	105	110	
gat gta gcc aaa gga atg cat tat tta cat atg gag gct cct gtc aag				384
Asp Val Ala Lys Gly Met His Tyr Leu His Met Glu Ala Pro Val Lys	115	120	125	
gtg att cac aga gac ctc aag tca aga aac gtt gtt ata gct gct gat				432
Val Ile His Arg Asp Leu Lys Ser Arg Asn Val Val Ile Ala Ala Asp	130	135	140	
gga gta ctg aag atc tgt gac ttt ggt gcc tct cgg ttc cat aac cat				480
Gly Val Leu Lys Ile Cys Asp Phe Gly Ala Ser Arg Phe His Asn His	145	150	155	160
aca aca cac atg tcc ttg gtt gga act ttc cca tgg atg gct cca gaa				528
Thr Thr His Met Ser Leu Val Gly Thr Phe Pro Trp Met Ala Pro Glu	165	170	175	
gtt atc cag agt ctc cct gtg tca gaa act tgt gac aca tat tcc tat				576
Val Ile Gln Ser Leu Pro Val Ser Glu Thr Cys Asp Thr Tyr Ser Tyr	180	185	190	
ggt gtg gtt ctc tgg gag atg cta aca agg gag gtc ccc ttt aaa ggt				624
Gly Val Val Leu Trp Glu Met Leu Thr Arg Glu Val Pro Phe Lys Gly	195	200	205	
ttg gaa gga tta caa gta gct tgg ctt gta gtg gaa aaa aac gag aga				672
Leu Glu Gly Leu Gln Val Ala Trp Leu Val Val Glu Lys Asn Glu Arg	210	215	220	
tta acc att cca agc agt tgc ccc aga agt ttt gct gaa ctg tta cat				720
Leu Thr Ile Pro Ser Ser Cys Pro Arg Ser Phe Ala Glu Leu Leu His	225	230	235	240

92

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att tca atc ctg gag tcc atg tca aat gac acg agc ctt cct gac aag Ile Ser Ile Leu Glu Ser Met Ser Asn Asp Thr Ser Leu Pro Asp Lys 260 265 270	816
tgt aac tca ttc cta cac aac aag gcg gag tgg agg tgc gaa att gag Cys Asn Ser Phe Leu His Asn Lys Ala Glu Trp Arg Cys Glu Ile Glu 275 280 285	864
gca act ctt gag agg cta aag aaa cta gag cgt gat ctc agc ttt aag Ala Thr Leu Glu Arg Leu Lys Lys Leu Glu Arg Asp Leu Ser Phe Lys 290 295 300	912
gag cag gag ctt aaa gaa cga gaa aga cgt tta aag atg tgg gag caa Glu Gln Glu Leu Lys Glu Arg Glu Arg Arg Leu Lys Met Trp Glu Gln 305 310 315 320	960
aag ctg aca gag cag tcc aac acc ccg ctt ctc ttg cct ctt gct gca Lys Leu Thr Glu Gln Ser Asn Thr Pro Leu Leu Leu Pro Leu Ala Ala 325 330 335	1008
aga atg tct gag gag tct tac ttt gaa tct aaa aca gag gag tca aac Arg Met Ser Glu Glu Ser Tyr Phe Glu Ser Lys Thr Glu Glu Ser Asn 340 345 350	1056
agt gca gag atg tca tgt cag atc aca gca aca agt aac ggg gag ggc Ser Ala Glu Met Ser Cys Gln Ile Thr Ala Thr Ser Asn Gly Glu Gly 355 360 365	1104
cat ggc atg aac cca agt ctg cag gcc atg atg ctg atg ggc ttt ggg His Gly Met Asn Pro Ser Leu Gln Ala Met Met Leu Met Gly Phe Gly 370 375 380	1152
gat atc ttc tca atg aac aaa gca gga gct gtg atg cat tct ggg atg Asp Ile Phe Ser Met Asn Lys Ala Gly Ala Val Met His Ser Gly Met 385 390 395 400	1200
cag ata aac atg caa gcc aag cag aat tct tcc aaa acc aca tct aag Gln Ile Asn Met Gln Ala Lys Gln Asn Ser Ser Lys Thr Thr Ser Lys 405 410 415	1248
aga agg ggg aag aaa gtc aac atg gct ctg ggg ttc agt gat ttt gac Arg Arg Gly Lys Lys Val Asn Met Ala Leu Gly Phe Ser Asp Phe Asp 420 425 430	1296
ttg tca gaa ggt gac gat gat gat gat gat gac ggt gag gag gag gat Leu Ser Glu Gly Asp Asp Asp Asp Asp Asp Asp Gly Glu Glu Glu Asp 435 440 445	1344
aat gac atg gat aat agt gaa Asn Asp Met Asp Asn Ser Glu 450 455	1365

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<213> Homo sapiens
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<222> (51)..(1793)
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Val	Arg	Gln	Ala	Leu	Gly	Arg	Gly	Leu	Gln	Leu	Gly	Arg	Ala	Leu	Leu		
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																	10
																	15
ctg	cgc	ttc	acg	ggc	aag	ccc	ggc	cgg	gcc	tac	ggc	ttg	ggg	cgg	ccg	152	
Leu	Arg	Phe	Thr	Gly	Lys	Pro	Gly	Arg	Ala	Tyr	Gly	Leu	Gly	Arg	Pro		
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																	25
																	30
ggc	ccg	gcg	gcg	ggc	tgt	gtc	cgc	ggg	gag	cgt	cca	ggc	ttg	gcc	gca	200	
Gly	Pro	Ala	Ala	Gly	Cys	Val	Arg	Gly	Glu	Arg	Pro	Gly	Trp	Ala	Ala		
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																	45
																	50
gga	ccg	ggc	gcg	gag	cct	cgc	agg	gtc	ggg	ctc	ggg	ctt	cct	aac	cgt	248	
Gly	Pro	Gly	Ala	Glu	Pro	Arg	Arg	Val	Gly	Leu	Gly	Leu	Pro	Asn	Arg		
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																	60
																	65
ctc	cgc	ttc	ttc	cgc	cag	tcg	gtg	gcc	ggg	ctg	gcg	gcg	cgg	ttg	cag	296	
Leu	Arg	Phe	Phe	Arg	Gln	Ser	Val	Ala	Gly	Leu	Ala	Ala	Arg	Leu	Gln		
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																	75
																	80
cgg	cag	ttc	gtg	gtg	cgg	gcc	tgg	ggc	tgc	gcg	ggc	cct	tgc	ggc	cgg	344	
Arg	Gln	Phe	Val	Val	Arg	Ala	Trp	Gly	Cys	Ala	Gly	Pro	Cys	Gly	Arg		
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																	90
																	95
gca	gtc	ttt	ctg	gcc	ttc	ggg	cta	ggg	ctg	ggc	ctc	atc	gag	gaa	aaa	392	
Ala	Val	Phe	Leu	Ala	Phe	Gly	Leu	Gly	Leu	Gly	Leu	Ile	Glu	Glu	Lys		
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																	105
																	110
cag	gcg	gag	agc	cgg	cgg	gcg	gtc	tcg	gcc	tgt	cag	gag	atc	cag	gca	440	
Gln	Ala	Glu	Ser	Arg	Arg	Ala	Val	Ser	Ala	Cys	Gln	Glu	Ile	Gln	Ala		
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																	120
																	125
																	130
att	ttt	acc	cag	aaa	agc	aag	ccg	ggg	cct	gac	ccg	ttg	gac	acg	aga	488	
Ile	Phe	Thr	Gln	Lys	Ser	Lys	Pro	Gly	Pro	Asp	Pro	Leu	Asp	Thr	Arg		
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																	140
																	145
cgc	ttg	cag	ggc	ttt	cgg	ctg	gag	gag	tat	ctg	ata	ggg	cag	tcc	att	536	
Arg	Leu	Gln	Gly	Phe	Arg	Leu	Glu	Glu	Tyr	Leu	Ile	Gly	Gln	Ser	Ile		
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																	160
ggt	aag	ggc	tgc	agt	gct	gct	gtg	tat	gaa	gcc	acc	atg	cct	aca	ttg	584	
Gly	Lys	Gly	Cys	Ser	Ala	Ala	Val	Tyr	Glu	Ala	Thr	Met	Pro	Thr	Leu		

94

165	170	175	
ccc cag aac ctg gag gtg Pro Gln Asn Leu Glu Val 180	aca aag agc acc ggg Thr Lys Ser Thr Gly 185	ttg ctt cca ggg aga Leu Leu Pro Gly Arg 190	632
ggc cca ggt acc agt gca Gly Pro Gly Thr Ser 195	cca gga gaa ggg Ala Pro Gly Glu Gly 200	cag gag cga gct ccg ggg Gln Glu Arg Ala Pro Gly 205	680
gcc cct gcc ttc ccc ttg Ala Pro Ala Phe Pro 215	gcc atc aag atg atg Ala Ile Lys Met Met 220	ttg aac atc tgc gca Trp Asn Ile Ser Ala 225	728
ggc tcc tcc agc gaa gcc Gly Ser Ser Ser Glu 230	atc ttg aac aca atg Ile Leu Asn Thr Met 235	agc cag gag ctg gtc Ser Gln Glu Leu Val 240	776
cca gcg agc cga gtg gcc Pro Ala Ser Arg Val 245	ttg gct ggg gag tat Leu Ala Gly Glu Tyr 250	gga gca gtc act tac Gly Ala Val Thr Tyr 255	824
aga aaa tcc aag aga ggt Arg Lys Ser Lys Arg 260	ccc aag caa cta gcc Gly Pro Lys Gln Leu 265	cct cac ccc aac atc Pro His Pro Asn Ile 270	872
atc cgg gtt ctc cgc gcc Ile Arg Val Leu Arg 275	ttc acc tct tcc gtg Ala Phe Thr Ser Ser 280	ccg ctg ctg cca ggg Val Pro Leu Leu Pro 285	920
gcc ctg gtc gac tac cct Ala Leu Val Asp Tyr 295	gat gtg ctg ccc tca Pro Asp Val Leu Pro 300	cgc ctc cac cct gaa Arg Leu His Pro Glu 305	968
ggc ctg ggc cat ggc cgg Gly Leu Gly His Gly 310	acg ctg ttc ctc gtt Arg Thr Leu Phe Leu 315	atg aag aac tat ccc Val Met Lys Asn Tyr 320	1016
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caa cag ggc atc gcg cac Gln Gln Gly Ile Ala 355	aga gac ctg aaa tcc Arg Asp Leu Lys Ser 360	gac aac atc ctt gtg Asp Asn Ile Leu Val 365	1160
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95

tgg tac gtg gat cgg ggc gga aac ggc tgt ctg atg gcc cca gag gtg 1304
 Trp Tyr Val Asp Arg Gly Gly Asn Gly Cys Leu Met Ala Pro Glu Val
 405 410 415

tcc acg gcc cgt cct ggc ccc agg gca gtg att gac tac agc aag gct 1352
 Ser Thr Ala Arg Pro Gly Pro Arg Ala Val Ile Asp Tyr Ser Lys Ala
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gat gcc tgg gca gtg gga gcc atc gcc tat gaa atc ttc ggg ctt gtc 1400
 Asp Ala Trp Ala Val Gly Ala Ile Ala Tyr Glu Ile Phe Gly Leu Val
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aat ccc ttc tac ggc cag ggc aag gcc cac ctt gaa agc cgc agc tac 1448
 Asn Pro Phe Tyr Gly Gln Gly Lys Ala His Leu Glu Ser Arg Ser Tyr
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caa gag gct cag cta cct gca ctg ccc gag tca gtg cct cca gac gtg 1496
 Gln Glu Ala Gln Leu Pro Ala Leu Pro Glu Ser Val Pro Pro Asp Val
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 Arg Gln Leu Val Arg Ala Leu Leu Gln Arg Glu Ala Ser Lys Arg Pro
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tct gcc cga gta gcc gca aat gtg ctt cat cta agc ctc tgg ggt gaa 1592
 Ser Ala Arg Val Ala Ala Asn Val Leu His Leu Ser Leu Trp Gly Glu
 500 505 510

cat att cta gcc ctg aag aat ctg aag tta gac aag atg gtt ggc tgg 1640
 His Ile Leu Ala Leu Lys Asn Leu Lys Leu Asp Lys Met Val Gly Trp
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 Lys Cys Cys Val Glu Thr Lys Met Lys Met Leu Phe Leu Ala Asn Leu
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 565 570 575

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 Ala Ala Leu
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96

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<212> PRT

<213> Homo sapiens

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 35 40 45
 Ala Ala Gly Pro Gly Ala Glu Pro Arg Arg Val Gly Leu Gly Leu Pro
 50 55 60
 Asn Arg Leu Arg Phe Phe Arg Gln Ser Val Ala Gly Leu Ala Ala Arg
 65 70 75 80
 Leu Gln Arg Gln Phe Val Val Arg Ala Trp Gly Cys Ala Gly Pro Cys
 85 90 95
 Gly Arg Ala Val Phe Leu Ala Phe Gly Leu Gly Leu Gly Leu Ile Glu
 100 105 110
 Glu Lys Gln Ala Glu Ser Arg Arg Ala Val Ser Ala Cys Gln Glu Ile
 115 120 125
 Gln Ala Ile Phe Thr Gln Lys Ser Lys Pro Gly Pro Asp Pro Leu Asp
 130 135 140
 Thr Arg Arg Leu Gln Gly Phe Arg Leu Glu Glu Tyr Leu Ile Gly Gln
 145 150 155 160
 Ser Ile Gly Lys Gly Cys Ser Ala Ala Val Tyr Glu Ala Thr Met Pro
 165 170 175
 Thr Leu Pro Gln Asn Leu Glu Val Thr Lys Ser Thr Gly Leu Leu Pro
 180 185 190

97

Gly Arg Gly Pro Gly Thr Ser Ala Pro Gly Glu Gly Gln Glu Arg Ala
 195 200 205
 Pro Gly Ala Pro Ala Phe Pro Leu Ala Ile Lys Met Met Trp Asn Ile
 210 215 220
 Ser Ala Gly Ser Ser Ser Glu Ala Ile Leu Asn Thr Met Ser Gln Glu
 225 230 235 240
 Leu Val Pro Ala Ser Arg Val Ala Leu Ala Gly Glu Tyr Gly Ala Val
 245 250 255
 Thr Tyr Arg Lys Ser Lys Arg Gly Pro Lys Gln Leu Ala Pro His Pro
 260 265 270
 Asn Ile Ile Arg Val Leu Arg Ala Phe Thr Ser Ser Val Pro Leu Leu
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 Pro Gly Ala Leu Val Asp Tyr Pro Asp Val Leu Pro Ser Arg Leu His
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 Pro Glu Gly Leu Gly His Gly Arg Thr Leu Phe Leu Val Met Lys Asn
 305 310 315 320
 Tyr Pro Cys Thr Leu Arg Gln Tyr Leu Cys Val Asn Thr Pro Ser Pro
 325 330 335
 Arg Leu Ala Ala Met Met Leu Leu Gln Leu Leu Glu Gly Val Asp His
 340 345 350
 Leu Val Gln Gln Gly Ile Ala His Arg Asp Leu Lys Ser Asp Asn Ile
 355 360 365
 Leu Val Glu Leu Asp Pro Asp Gly Cys Pro Trp Leu Val Ile Ala Asp
 370 375 380
 Phe Gly Cys Cys Leu Ala Asp Glu Ser Ile Gly Leu Gln Leu Pro Phe
 385 390 395 400
 Ser Ser Trp Tyr Val Asp Arg Gly Gly Asn Gly Cys Leu Met Ala Pro
 405 410 415
 Glu Val Ser Thr Ala Arg Pro Gly Pro Arg Ala Val Ile Asp Tyr Ser
 420 425 430
 Lys Ala Asp Ala Trp Ala Val Gly Ala Ile Ala Tyr Glu Ile Phe Gly
 435 440 445
 Leu Val Asn Pro Phe Tyr Gly Gln Gly Lys Ala His Leu Glu Ser Arg
 450 455 460
 Ser Tyr Gln Glu Ala Gln Leu Pro Ala Leu Pro Glu Ser Val Pro Pro
 465 470 475 480
 Asp Val Arg Gln Leu Val Arg Ala Leu Leu Gln Arg Glu Ala Ser Lys
 485 490 495

98

Arg Pro Ser Ala Arg Val Ala Ala Asn Val Leu His Leu Ser Leu Trp
 500 505 510

Gly Glu His Ile Leu Ala Leu Lys Asn Leu Lys Leu Asp Lys Met Val
 515 520 525

Gly Trp Leu Leu Gln Gln Ser Ala Ala Thr Leu Leu Ala Asn Arg Leu
 530 535 540

Thr Glu Lys Cys Cys Val Glu Thr Lys Met Lys Met Leu Phe Leu Ala
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Trp Arg Ala Ala Leu
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 <213> Homo sapiens

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 Leu Leu Leu Arg Phe Thr Gly Lys Pro Gly Arg Ala Tyr Gly Leu Gly
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cgg ccg ggc ccg gcg gcg ggc tgt gtc cgc ggg gag cgt cca ggc tgg 144
 Arg Pro Gly Pro Ala Ala Gly Cys Val Arg Gly Glu Arg Pro Gly Trp
 35 40 45

gcc gca gga ccg ggc gcg gag cct cgc agg gtc ggg ctc ggg ctt cct 192
 Ala Ala Gly Pro Gly Ala Glu Pro Arg Arg Val Gly Leu Gly Leu Pro
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aac cgt ctc cgc ttc ttc cgc cag tcg gtg gcc ggg ctg gcg gcg cgg 240
 Asn Arg Leu Arg Phe Phe Arg Gln Ser Val Ala Gly Leu Ala Ala Arg
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 Leu Gln Arg Gln Phe Val Val Arg Ala Trp Gly Cys Ala Gly Pro Cys
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ggc cgg gca gtc ttt ctg gcc ttc ggg cta ggg ctg gcc ctc atc gag 336
 Gly Arg Ala Val Phe Leu Ala Phe Gly Leu Gly Leu Gly Leu Ile Glu
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99

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Gln Ala Ile Phe Thr Gln Lys Ser Lys Pro Gly Pro Asp Pro Leu Asp	
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Gly Arg Gly Pro Gly Thr Ser Ala Pro Gly Glu Gly Gln Glu Arg Ala	
195 200 205	
ccg ggg gcc cct gcc ttc ccc ttg gcc atc aag atg atg tgg aac atc	672
Pro Gly Ala Pro Ala Phe Pro Leu Ala Ile Lys Met Met Trp Asn Ile	
210 215 220	
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Ser Ala Gly Ser Ser Ser Glu Ala Ile Leu Asn Thr Met Ser Gln Glu	
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Thr Tyr Arg Lys Ser Lys Arg Gly Pro Lys Gln Leu Ala Pro His Pro	
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Asn Ile Ile Arg Val Leu Arg Ala Phe Thr Ser Ser Val Pro Leu Leu	
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Pro Gly Ala Leu Val Asp Tyr Pro Asp Val Leu Pro Ser Arg Leu His	
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Pro Glu Gly Leu Gly His Gly Arg Thr Leu Phe Leu Val Met Lys Asn	
305 310 315 320	
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Tyr Pro Cys Thr Leu Arg Gln Tyr Leu Cys Val Asn Thr Pro Ser Pro	
325 330 335	
cgc ctc gcc gcc atg atg ctg ctg cag ctg ctg gaa ggc gtg gac cat	1056

100

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		355					360					365					
ctt	gtg	gag	ctg	gac	cca	gac	ggc	tgc	ccc	tgg	ctg	gtg	atc	gca	gat	1152	
Leu	Val	Glu	Leu	Asp	Pro	Asp	Gly	Cys	Pro	Trp	Leu	Val	Ile	Ala	Asp		
	370					375					380						
ttt	ggc	tgc	tgc	ctg	gct	gat	gag	agc	atc	ggc	ctg	cag	ttg	ccc	ttc	1200	
Phe	Gly	Cys	Cys	Leu	Ala	Asp	Glu	Ser	Ile	Gly	Leu	Gln	Leu	Pro	Phe		
385					390					395					400		
agc	agc	tgg	tac	gtg	gat	cgg	ggc	gga	aac	ggc	tgt	ctg	atg	gcc	cca	1248	
Ser	Ser	Trp	Tyr	Val	Asp	Arg	Gly	Gly	Asn	Gly	Cys	Leu	Met	Ala	Pro		
			405					410						415			
gag	gtg	tcc	acg	gcc	cgt	cct	ggc	ccc	agg	gca	gtg	att	gac	tac	agc	1296	
Glu	Val	Ser	Thr	Ala	Arg	Pro	Gly	Pro	Arg	Ala	Val	Ile	Asp	Tyr	Ser		
			420					425					430				
aag	gct	gat	gcc	tgg	gca	gtg	gga	gcc	atc	gcc	tat	gaa	atc	ttc	ggg	1344	
Lys	Ala	Asp	Ala	Trp	Ala	Val	Gly	Ala	Ile	Ala	Tyr	Glu	Ile	Phe	Gly		
		435					440					445					
ctt	gtc	aat	ccc	ttc	tac	ggc	cag	ggc	aag	gcc	cac	ctt	gaa	agc	cgc	1392	
Leu	Val	Asn	Pro	Phe	Tyr	Gly	Gln	Gly	Lys	Ala	His	Leu	Glu	Ser	Arg		
	450					455					460						
agc	tac	caa	gag	gct	cag	cta	cct	gca	ctg	ccc	gag	tca	gtg	cct	cca	1440	
Ser	Tyr	Gln	Glu	Ala	Gln	Leu	Pro	Ala	Leu	Pro	Glu	Ser	Val	Pro	Pro		
465					470					475					480		
gac	gtg	aga	cag	ttg	gtg	agg	gca	ctg	ctc	cag	cga	gag	gcc	agc	aag	1488	
Asp	Val	Arg	Gln	Leu	Val	Arg	Ala	Leu	Leu	Gln	Arg	Glu	Ala	Ser	Lys		
			485					490						495			
aga	cca	tct	gcc	cga	gta	gcc	gca	aat	gtg	ctt	cat	cta	agc	ctc	tgg	1536	
Arg	Pro	Ser	Ala	Arg	Val	Ala	Ala	Asn	Val	Leu	His	Leu	Ser	Leu	Trp		
			500					505					510				
ggc	gaa	cat	att	cta	gcc	ctg	aag	aat	ctg	aag	tta	gac	aag	atg	gtt	1584	
Gly	Glu	His	Ile	Leu	Ala	Leu	Lys	Asn	Leu	Lys	Leu	Asp	Lys	Met	Val		
		515				520						525					
ggc	tgg	ctc	ctc	caa	caa	tcg	gcc	gcc	act	ttg	ttg	gcc	aac	agg	ctc	1632	
Gly	Trp	Leu	Leu	Gln	Gln	Ser	Ala	Ala	Thr	Leu	Leu	Ala	Asn	Arg	Leu		
	530					535						540					
aca	gag	aag	tgt	tgt	gtg	gaa	aca	aaa	atg	aag	atg	ctc	ttt	ctg	gct	1680	
Thr	Glu	Lys	Cys	Cys	Val	Glu	Thr	Lys	Met	Lys	Met	Leu	Phe	Leu	Ala		
545					550					555					560		
aac	ctg	gag	tgt	gaa	acg	ctc	tgc	cag	gca	gcc	ctc	ctc	ctc	tgc	tca	1728	
Asn	Leu	Glu	Cys	Glu	Thr	Leu	Cys	Gln	Ala	Ala	Leu	Leu	Leu	Cys	Ser		

101

565 570 575 1743

tgg agg gca gcc ctg
Trp Arg Ala Ala Leu
580

<210> 10
<211> 1864
<212> DNA
<213> Homo sapiens

<220>
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<222> (275)..(754)

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cgcttttgag tccgttgaag acacaatttc tctctgtcgg gtgcttagga ggagctccat 120
gaacatgtat tgaattggac ttagctgaac aggctgctgg ttggctgccc agaggggggca 180
ggctgtgttg ctgggagcct tccagctccc tgcagcagtc atggggcagg gttccccgag 240
tccgtaatcc ccatttccac ctactttccc ttag tta ttt gat tcc ctg tct gtc 295
Leu Phe Asp Ser Leu Ser Val
1 5

gta ctc agc tta agt gga gca tcc cct ttc ctg gga gac acg aag cag 343
Val Leu Ser Leu Ser Gly Ala Ser Pro Phe Leu Gly Asp Thr Lys Gln
10 15 20

gaa aca ctg gca aat atc aca gca gtg agt tac gac ttt gat gag gaa 391
Glu Thr Leu Ala Asn Ile Thr Ala Val Ser Tyr Asp Phe Asp Glu Glu
25 30 35

ttc ttc agc cag acg agc gag ctg gcc aag gac ttt att cgg aag ctt 439
Phe Phe Ser Gln Thr Ser Glu Leu Ala Lys Asp Phe Ile Arg Lys Leu
40 45 50 55

ctg gtt aaa gag acc cgg aaa cgg ctc aca atc caa gag gct ctc aga 487
Leu Val Lys Glu Thr Arg Lys Arg Leu Thr Ile Gln Glu Ala Leu Arg
60 65 70

cac ccc tgg atc acg ccg gtg gac aac cag caa gcc atg gtg cgc agg 535
His Pro Trp Ile Thr Pro Val Asp Asn Gln Gln Ala Met Val Arg Arg
75 80 85

gag tct gtg gtc aat ctg gag aac ttc agg aag cag tat gtc cgc agg 583
Glu Ser Val Val Asn Leu Glu Asn Phe Arg Lys Gln Tyr Val Arg Arg
90 95 100

cgg tgg aag ctt tcc ttc agc atc gtg tcc ctg tgc aac cac ctc acc 631
Arg Trp Lys Leu Ser Phe Ser Ile Val Ser Leu Cys Asn His Leu Thr
105 110 115

102

cgc tcg ctg atg aag aag gtg cac ctg agg ccg gat gag gac ctg agg 679
 Arg Ser Leu Met Lys Lys Val His Leu Arg Pro Asp Glu Asp Leu Arg
 120 125 130 135

aac tgt gag agt gac act gag gag gac atc gcc agg agg aaa gcc ctc 727
 Asn Cys Glu Ser Asp Thr Glu Glu Asp Ile Ala Arg Arg Lys Ala Leu
 140 145 150

cac cca cgg agg agg agc agc acc tcc taactggcct gacctgcagt 774
 His Pro Arg Arg Ser Ser Thr Ser
 155 160

ggccgccagg gaggtctggg ccagcgggg ctccttctg tgcagacttt tggaccagc 834
 tcagcaccag caccgggcg tctgagcac ttgcaagag agatgggcc aaggaattca 894
 gaagagcttg caggcaagcc aggagaccct gggagctgtg gctgtcttct gtggaggagg 954
 ctccagcatt cccaaagctc ttaattctcc ataaaatggg ctttctctg tctgccatcc 1014
 tcagagtctg ggggtgggagt gtggacttag gaaaacaata taaaggacat cctcatcatc 1074
 acgggggtgaa ggtcagacta aggcagcctt cttcacaggc tgaggggggtt cagaaccagc 1134
 ctggccaaaa attacaccag agagacagag tcctcccat tgggaacagg gtgattgagg 1194
 aaagtgaacc ttgggtgtga gggaccaatc ctgtgacctc ccagaaccat ggaagccagg 1254
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 taccceccatc tcatttcctt tagcccggtg gcctgtaact ctgagggggg gcaccagtg 1434
 ggggtgtgag tgggcagaat ctcagaaggt cctcctgaac cgtccgcgca ggctgcagt 1494
 gggcctgcct cctccttgct tcctaacag gaaggtgtcc agttcaagag aaccaccca 1554
 gagactggga gtgggtggctc acgcctataa tccctgcgct ttggcagtc gaggcagggg 1614
 aattgcttga actcaggagt tggagaccag cctgggcaac atggcaaac gcagtctgta 1674
 caaaaaatc aaaaaattag ccaggtgtag gggtaggcac ctggcatccc agctactcca 1734
 ggggctgagg tgacagcatt gcttaagccc agaaggtcga ggctgcagt agctgagatc 1794
 acgccactgc actccagtct gggtgacaga gagagaccat atccaaaaa aaaaaaaaaa 1854
 ggccggccgc 1864

<210> 11
 <211> 160
 <212> PRT
 <213> Homo sapiens
 <400> 11

103

Leu Phe Asp Ser Leu Ser Val Val Leu Ser Leu Ser Gly Ala Ser Pro
 1 5 10 15
 Phe Leu Gly Asp Thr Lys Gln Glu Thr Leu Ala Asn Ile Thr Ala Val
 20 25 30
 Ser Tyr Asp Phe Asp Glu Glu Phe Phe Ser Gln Thr Ser Glu Leu Ala
 35 40 45
 Lys Asp Phe Ile Arg Lys Leu Leu Val Lys Glu Thr Arg Lys Arg Leu
 50 55 60
 Thr Ile Gln Glu Ala Leu Arg His Pro Trp Ile Thr Pro Val Asp Asn
 65 70 75 80
 Gln Gln Ala Met Val Arg Arg Glu Ser Val Val Asn Leu Glu Asn Phe
 85 90 95
 Arg Lys Gln Tyr Val Arg Arg Arg Trp Lys Leu Ser Phe Ser Ile Val
 100 105 110
 Ser Leu Cys Asn His Leu Thr Arg Ser Leu Met Lys Lys Val His Leu
 115 120 125
 Arg Pro Asp Glu Asp Leu Arg Asn Cys Glu Ser Asp Thr Glu Glu Asp
 130 135 140
 Ile Ala Arg Arg Lys Ala Leu His Pro Arg Arg Arg Ser Ser Thr Ser
 145 150 155 160

<210> 12
 <211> 480
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)..(480)

<400> 12
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 Leu Phe Asp Ser Leu Ser Val Val Leu Ser Leu Ser Gly Ala Ser Pro
 1 5 10 15
 ttc ctg gga gac acg aag cag gaa aca ctg gca aat atc aca gca gta 96
 Phe Leu Gly Asp Thr Lys Gln Glu Thr Leu Ala Asn Ile Thr Ala Val
 20 25 30
 agt tac gac ttt gat gag gaa ttc ttc agc cag acg agc gag ctg gcc 144
 Ser Tyr Asp Phe Asp Glu Glu Phe Phe Ser Gln Thr Ser Glu Leu Ala
 35 40 45
 aag gac ttt att cgg aag ctt ctg gtt aaa gag acc cgg aaa cgg ctc 192
 Lys Asp Phe Ile Arg Lys Leu Leu Val Lys Glu Thr Arg Lys Arg Leu
 50 55 60

104

aca atc caa gag gct ctc aga cac ccc tgg atc acg ccg gtg gac aac 240
 Thr Ile Gln Glu Ala Leu Arg His Pro Trp Ile Thr Pro Val Asp Asn
 65 70 75 80

cag caa gcc atg gtg cgc agg gag tct gtg gtc aat ctg gag aac ttc 288
 Gln Gln Ala Met Val Arg Arg Glu Ser Val Val Asn Leu Glu Asn Phe
 85 90 95

agg aag cag tat gtc cgc agg cgg tgg aag ctt tcc ttc agc atc gtg 336
 Arg Lys Gln Tyr Val Arg Arg Arg Trp Lys Leu Ser Phe Ser Ile Val
 100 105 110

tcc ctg tgc aac cac ctc acc cgc tgc ctg atg aag aag gtg cac ctg 384
 Ser Leu Cys Asn His Leu Thr Arg Ser Leu Met Lys Lys Val His Leu
 115 120 125

agg ccg gat gag gac ctg agg aac tgt gag agt gac act gag gag gac 432
 Arg Pro Asp Glu Asp Leu Arg Asn Cys Glu Ser Asp Thr Glu Glu Asp
 130 135 140

atc gcc agg agg aaa gcc ctc cac cca cgg agg agg agc agc acc tcc 480
 Ile Ala Arg Arg Lys Ala Leu His Pro Arg Arg Arg Ser Ser Thr Ser
 145 150 155 160

<210> 13

<211> 1333

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (2)..(1333)

<400> 13

g acg gca tta gcc aaa gaa cta aga gaa ctc cgg att gaa gaa aca aac 49
 Thr Ala Leu Ala Lys Glu Leu Arg Glu Leu Arg Ile Glu Glu Thr Asn
 1 5 10 15

cgc cca atg aag aag gtg act gat tac tcc tcc tcc agt gag gag tca 97
 Arg Pro Met Lys Lys Val Thr Asp Tyr Ser Ser Ser Ser Glu Glu Ser
 20 25 30

gaa agt agc gag gaa gag gag gaa gat gga gag agc gag acc cat gat 145
 Glu Ser Ser Glu Glu Glu Glu Glu Asp Gly Glu Ser Glu Thr His Asp
 35 40 45

ggg aca gtg gct gtc agc gac ata ccc aga ctg ata cca aca gga gct 193
 Gly Thr Val Ala Val Ser Asp Ile Pro Arg Leu Ile Pro Thr Gly Ala
 50 55 60

cca ggc agc aac gag cag tac aat gtg gga atg gtg ggg acg cat ggg 241
 Pro Gly Ser Asn Glu Gln Tyr Asn Val Gly Met Val Gly Thr His Gly
 65 70 75 80

ctg gag acc tct cat gcg gac agt ttc agc ggc agt att tca aga gaa 289
 Leu Glu Thr Ser His Ala Asp Ser Phe Ser Gly Ser Ile Ser Arg Glu

105

	85	90	95	
gga acc ttg atg att aga gag acg tct gga gag aag aag cga tct ggc				337
Gly Thr Leu Met Ile Arg Glu Thr Ser Gly Glu Lys Lys Arg Ser Gly				
	100	105	110	
cac agt gac agc aat ggc ttt gct ggc cac atc aac ctc cct gac ctg				385
His Ser Asp Ser Asn Gly Phe Ala Gly His Ile Asn Leu Pro Asp Leu				
	115	120	125	
gtg cag cag agc cat tct cca gct gga acc ccg act gag gga ctg ggg				433
Val Gln Gln Ser His Ser Pro Ala Gly Thr Pro Thr Glu Gly Leu Gly				
	130	135	140	
cgc gtc tca acc cat tcc cag gag atg gac tct ggg act gaa tat ggc				481
Arg Val Ser Thr His Ser Gln Glu Met Asp Ser Gly Thr Glu Tyr Gly				
	145	150	155	160
atg ggg agc agc acc aaa gcc tcc ttc acc ccc ttt gtg gac ccc aga				529
Met Gly Ser Ser Thr Lys Ala Ser Phe Thr Pro Phe Val Asp Pro Arg				
	165	170	175	
gta tac cag acg tct ccc act gat gaa gat gaa gag gat gag gaa tca				577
Val Tyr Gln Thr Ser Pro Thr Asp Glu Asp Glu Glu Asp Glu Glu Ser				
	180	185	190	
tca gcc gca gct ctg ttt act agc gaa ctt ctt agg caa gaa cag gcc				625
Ser Ala Ala Ala Leu Phe Thr Ser Glu Leu Leu Arg Gln Glu Gln Ala				
	195	200	205	
aaa ctc aat gaa gca aga aag att tcg gtg gta aat gta aac cca acc				673
Lys Leu Asn Glu Ala Arg Lys Ile Ser Val Val Asn Val Asn Pro Thr				
	210	215	220	
aac att cgg cct cat agc gac aca cca gaa atc aga aaa tac aag aaa				721
Asn Ile Arg Pro His Ser Asp Thr Pro Glu Ile Arg Lys Tyr Lys Lys				
	225	230	235	240
cga ttc aac tca gaa ata ctt tgt gca gct ctg tgg ggt gta aac ctt				769
Arg Phe Asn Ser Glu Ile Leu Cys Ala Ala Leu Trp Gly Val Asn Leu				
	245	250	255	
ctg gtg ggg act gaa aat ggc ctg atg ctt ttg gac cga agt ggg caa				817
Leu Val Gly Thr Glu Asn Gly Leu Met Leu Leu Asp Arg Ser Gly Gln				
	260	265	270	
ggc aaa gtc tat aat ctg atc aac cgg agg cga ttt cag cag atg gat				865
Gly Lys Val Tyr Asn Leu Ile Asn Arg Arg Arg Phe Gln Gln Met Asp				
	275	280	285	
gtg cta gag gga ctg aat gtc ctt gtg aca att tca gga aag aag aat				913
Val Leu Glu Gly Leu Asn Val Leu Val Thr Ile Ser Gly Lys Lys Asn				
	290	295	300	
aag cta cga gtt tac tat ctt tca tgg tta aga aac aga ata cta cat				961
Lys Leu Arg Val Tyr Tyr Leu Ser Trp Leu Arg Asn Arg Ile Leu His				
	305	310	315	320

106

aat gac cca gaa gta gaa aag aaa caa ggc tgg atc act gtt ggg gac 1009
 Asn Asp Pro Glu Val Glu Lys Lys Gln Gly Trp Ile Thr Val Gly Asp
 325 330 335

ttg gaa ggc tgt ata cat tat aaa gtt gtt aaa tat gaa agg atc aaa 1057
 Leu Glu Gly Cys Ile His Tyr Lys Val Val Lys Tyr Glu Arg Ile Lys
 340 345 350

ttt ttg gtg att gcc tta aag aat gct gtg gaa ata tat gct tgg gct 1105
 Phe Leu Val Ile Ala Leu Lys Asn Ala Val Glu Ile Tyr Ala Trp Ala
 355 360 365

cct aaa ccg tat cat aaa ttc atg gca ttt aag tct ttt gca gat ctc 1153
 Pro Lys Pro Tyr His Lys Phe Met Ala Phe Lys Ser Phe Ala Asp Leu
 370 375 380

cag cac aag cct ctg cta gtt gat ctc acg gta gaa gaa ggt caa aga 1201
 Gln His Lys Pro Leu Leu Val Asp Leu Thr Val Glu Glu Gly Gln Arg
 385 390 395 400

tta aag gtt att ttt ggt tca cac act ggt ttc cat gta att gat gtt 1249
 Leu Lys Val Ile Phe Gly Ser His Thr Gly Phe His Val Ile Asp Val
 405 410 415

gat tca gga aac tct tat gat atc tac ata cca tct cat att cag ggc 1297
 Asp Ser Gly Asn Ser Tyr Asp Ile Tyr Ile Pro Ser His Ile Gln Gly
 420 425 430

aat atc act cct cat gct att gtc atc ttg cct aaa 1333
 Asn Ile Thr Pro His Ala Ile Val Ile Leu Pro Lys
 435 440

<210> 14

<211> 444

<212> PRT

<213> Homo sapiens

<400> 14

Thr Ala Leu Ala Lys Glu Leu Arg Glu Leu Arg Ile Glu Glu Thr Asn
 1 5 10 15

Arg Pro Met Lys Lys Val Thr Asp Tyr Ser Ser Ser Ser Glu Glu Ser
 20 25 30

Glu Ser Ser Glu Glu Glu Glu Glu Asp Gly Glu Ser Glu Thr His Asp
 35 40 45

Gly Thr Val Ala Val Ser Asp Ile Pro Arg Leu Ile Pro Thr Gly Ala
 50 55 60

Pro Gly Ser Asn Glu Gln Tyr Asn Val Gly Met Val Gly Thr His Gly
 65 70 75 80

Leu Glu Thr Ser His Ala Asp Ser Phe Ser Gly Ser Ile Ser Arg Glu
 85 90 95

107

Gly Thr Leu Met Ile Arg Glu Thr Ser Gly Glu Lys Lys Arg Ser Gly
 100 105 110
 His Ser Asp Ser Asn Gly Phe Ala Gly His Ile Asn Leu Pro Asp Leu
 115 120 125
 Val Gln Gln Ser His Ser Pro Ala Gly Thr Pro Thr Glu Gly Leu Gly
 130 135 140
 Arg Val Ser Thr His Ser Gln Glu Met Asp Ser Gly Thr Glu Tyr Gly
 145 150 155 160
 Met Gly Ser Ser Thr Lys Ala Ser Phe Thr Pro Phe Val Asp Pro Arg
 165 170 175
 Val Tyr Gln Thr Ser Pro Thr Asp Glu Asp Glu Glu Asp Glu Glu Ser
 180 185 190
 Ser Ala Ala Ala Leu Phe Thr Ser Glu Leu Leu Arg Gln Glu Gln Ala
 195 200 205
 Lys Leu Asn Glu Ala Arg Lys Ile Ser Val Val Asn Val Asn Pro Thr
 210 215 220
 Asn Ile Arg Pro His Ser Asp Thr Pro Glu Ile Arg Lys Tyr Lys Lys
 225 230 235 240
 Arg Phe Asn Ser Glu Ile Leu Cys Ala Ala Leu Trp Gly Val Asn Leu
 245 250 255
 Leu Val Gly Thr Glu Asn Gly Leu Met Leu Leu Asp Arg Ser Gly Gln
 260 265 270
 Gly Lys Val Tyr Asn Leu Ile Asn Arg Arg Arg Phe Gln Gln Met Asp
 275 280 285
 Val Leu Glu Gly Leu Asn Val Leu Val Thr Ile Ser Gly Lys Lys Asn
 290 295 300
 Lys Leu Arg Val Tyr Tyr Leu Ser Trp Leu Arg Asn Arg Ile Leu His
 305 310 315 320
 Asn Asp Pro Glu Val Glu Lys Lys Gln Gly Trp Ile Thr Val Gly Asp
 325 330 335
 Leu Glu Gly Cys Ile His Tyr Lys Val Val Lys Tyr Glu Arg Ile Lys
 340 345 350
 Phe Leu Val Ile Ala Leu Lys Asn Ala Val Glu Ile Tyr Ala Trp Ala
 355 360 365
 Pro Lys Pro Tyr His Lys Phe Met Ala Phe Lys Ser Phe Ala Asp Leu
 370 375 380
 Gln His Lys Pro Leu Leu Val Asp Leu Thr Val Glu Glu Gly Gln Arg
 385 390 395 400

108

Leu Lys Val Ile Phe Gly Ser His Thr Gly Phe His Val Ile Asp Val
 405 410 415

Asp Ser Gly Asn Ser Tyr Asp Ile Tyr Ile Pro Ser His Ile Gln Gly
 420 425 430

Asn Ile Thr Pro His Ala Ile Val Ile Leu Pro Lys
 435 440

<210> 15

<211> 1332

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)..(1332)

<400> 15

acg gca tta gcc aaa gaa cta aga gaa ctc cgg att gaa gaa aca aac 48
 Thr Ala Leu Ala Lys Glu Leu Arg Glu Leu Arg Ile Glu Glu Thr Asn
 1 5 10 15

cgc cca atg aag aag gtg act gat tac tcc tcc tcc agt gag gag tca 96
 Arg Pro Met Lys Lys Val Thr Asp Tyr Ser Ser Ser Ser Glu Glu Ser
 20 25 30

gaa agt agc gag gaa gag gag gaa gat gga gag agc gag acc cat gat 144
 Glu Ser Ser Glu Glu Glu Glu Glu Asp Gly Glu Ser Glu Thr His Asp
 35 40 45

ggg aca gtg gct gtc agc gac ata ccc aga ctg ata cca aca gga gct 192
 Gly Thr Val Ala Val Ser Asp Ile Pro Arg Leu Ile Pro Thr Gly Ala
 50 55 60

cca ggc agc aac gag cag tac aat gtg gga atg gtg ggg acg cat ggg 240
 Pro Gly Ser Asn Glu Gln Tyr Asn Val Gly Met Val Gly Thr His Gly
 65 70 75 80

ctg gag acc tct cat gcg gac agt ttc agc ggc agt att tca aga gaa 288
 Leu Glu Thr Ser His Ala Asp Ser Phe Ser Gly Ser Ile Ser Arg Glu
 85 90 95

gga acc ttg atg att aga gag acg tct gga gag aag aag cga tct ggc 336
 Gly Thr Leu Met Ile Arg Glu Thr Ser Gly Glu Lys Lys Arg Ser Gly
 100 105 110

cac agt gac agc aat ggc ttt gct ggc cac atc aac ctc cct gac ctg 384
 His Ser Asp Ser Asn Gly Phe Ala Gly His Ile Asn Leu Pro Asp Leu
 115 120 125

gtg cag cag agc cat tct cca gct gga acc ccg act gag gga ctg ggg 432
 Val Gln Gln Ser His Ser Pro Ala Gly Thr Pro Thr Glu Gly Leu Gly
 130 135 140

109

cgc gtc tca acc cat tcc cag gag atg gac tct ggg act gaa tat ggc	480
Arg Val Ser Thr His Ser Gln Glu Met Asp Ser Gly Thr Glu Tyr Gly	
145 150 155 160	
atg ggg agc agc acc aaa gcc tcc ttc acc ccc ttt gtg gac ccc aga	528
Met Gly Ser Ser Thr Lys Ala Ser Phe Thr Pro Phe Val Asp Pro Arg	
165 170 175	
gta tac cag acg tct ccc act gat gaa gat gaa gag gat gag gaa tca	576
Val Tyr Gln Thr Ser Pro Thr Asp Glu Asp Glu Glu Asp Glu Glu Ser	
180 185 190	
tca gcc gca gct ctg ttt act agc gaa ctt ctt agg caa gaa cag gcc	624
Ser Ala Ala Ala Leu Phe Thr Ser Glu Leu Leu Arg Gln Glu Gln Ala	
195 200 205	
aaa ctc aat gaa gca aga aag att tcg gtg gta aat gta aac cca acc	672
Lys Leu Asn Glu Ala Arg Lys Ile Ser Val Val Asn Val Asn Pro Thr	
210 215 220	
aac att cgg cct cat agc gac aca cca gaa atc aga aaa tac aag aaa	720
Asn Ile Arg Pro His Ser Asp Thr Pro Glu Ile Arg Lys Tyr Lys Lys	
225 230 235 240	
cga ttc aac tca gaa ata ctt tgt gca gct ctg tgg ggt gta aac ctt	768
Arg Phe Asn Ser Glu Ile Leu Cys Ala Ala Leu Trp Gly Val Asn Leu	
245 250 255	
ctg gtg ggg act gaa aat ggc ctg atg ctt ttg gac cga agt ggg caa	816
Leu Val Gly Thr Glu Asn Gly Leu Met Leu Leu Asp Arg Ser Gly Gln	
260 265 270	
ggc aaa gtc tat aat ctg atc aac cgg agg cga ttt cag cag atg gat	864
Gly Lys Val Tyr Asn Leu Ile Asn Arg Arg Arg Phe Gln Gln Met Asp	
275 280 285	
gtg cta gag gga ctg aat gtc ctt gtg aca att tca gga aag aag aat	912
Val Leu Glu Gly Leu Asn Val Leu Val Thr Ile Ser Gly Lys Lys Asn	
290 295 300	
aag cta cga gtt tac tat ctt tca tgg tta aga aac aga ata cta cat	960
Lys Leu Arg Val Tyr Tyr Leu Ser Trp Leu Arg Asn Arg Ile Leu His	
305 310 315 320	
aat gac cca gaa gta gaa aag aaa caa ggc tgg atc act gtt ggg gac	1008
Asn Asp Pro Glu Val Glu Lys Lys Gln Gly Trp Ile Thr Val Gly Asp	
325 330 335	
ttg gaa ggc tgt ata cat tat aaa gtt gtt aaa tat gaa agg atc aaa	1056
Leu Glu Gly Cys Ile His Tyr Lys Val Val Lys Tyr Glu Arg Ile Lys	
340 345 350	
ttt ttg gtg att gcc tta aag aat gct gtg gaa ata tat gct tgg gct	1104
Phe Leu Val Ile Ala Leu Lys Asn Ala Val Glu Ile Tyr Ala Trp Ala	
355 360 365	
cct aaa ccg tat cat aaa ttc atg gca ttt aag tct ttt gca gat ctc	1152

110

Pro	Lys	Pro	Tyr	His	Lys	Phe	Met	Ala	Phe	Lys	Ser	Phe	Ala	Asp	Leu	
370						375					380					
cag	cac	aag	cct	ctg	cta	gtt	gat	ctc	acg	gta	gaa	gaa	ggt	caa	aga	1200
Gln	His	Lys	Pro	Leu	Leu	Val	Asp	Leu	Thr	Val	Glu	Glu	Gly	Gln	Arg	
385					390				395						400	
tta	aag	gtt	att	ttt	ggt	tca	cac	act	ggt	ttc	cat	gta	att	gat	gtt	1248
Leu	Lys	Val	Ile	Phe	Gly	Ser	His	Thr	Gly	Phe	His	Val	Ile	Asp	Val	
				405					410					415		
gat	tca	gga	aac	tct	tat	gat	atc	tac	ata	cca	tct	cat	att	cag	ggc	1296
Asp	Ser	Gly	Asn	Ser	Tyr	Asp	Ile	Tyr	Ile	Pro	Ser	His	Ile	Gln	Gly	
			420					425						430		
aat	atc	act	cct	cat	gct	att	gtc	atc	ttg	cct	aaa					1332
Asn	Ile	Thr	Pro	His	Ala	Ile	Val	Ile	Leu	Pro	Lys					
			435					440								